

"NOT" LOGIC ELEMENT

MODEL 59012 "NOT" element performs the logic function "NOT" with one input and one output. (The Output is On when the Input is Off . . . opposite if the "On-Off" is reversed.) Three base ports, a, b and c, are marked on the element cover to correspond with base port positions. Ports in element and circuit board match for circuitry completion.

SPECIFICATIONS

- 1 1/4" square
- 1 13/32" height
- 1 5/8" diagonal measure
- 1/2" mounting bolt extension

Necessary seals and mounting hardware furnished with element.

OPERATING PRESSURE

- 50 to 125 P.S.I.G. optimum range
- 25 to 150 P.S.I.G. maximum range

TEMPERATURE

- 32° to 160° F. optimum range
- 40° to 225° F. maximum range

RESPONSE TIME

- "a" on → "c" off 10 m.s. (approx.)
- "a" off → "c" on 10 m.s. (approx.)

FLOW CHARACTERISTICS

- Flow b → c at 100 P.S.I.G. = 16.2 C.F.M. free air
- Capacity factor Cv = 0.28



MODEL 59012

LOGIC SYMBOL	LOGIC FUNCTION	PORT DESIGNATION
	$c = \bar{a}$ output c is on if input a is off and vice versa	a = input b = supply c = output
VALVE SYMBOL	VALVE FUNCTION	PORT DESIGNATION
	3-way no	a = pilot b = supply c = output

For other functions see Technical Manual.

"MEM" LOGIC ELEMENT

MODEL 59013 "MEMORY" element "Sets" and "Resets" from the same input "a". ("SET": Output "c" switches and remains On if Input "a" is pressurized momentarily from a 2-way pilot source. "RESET": Output "c" will switch and remain Off if Input "a" is discharged momentarily to atmosphere with a bleeder (2-way) valve.) The element will also reset when pressure fails at supply "b". The element has three bottom ports designated a, b and c. They are marked on the cover to correspond to base positions.

SPECIFICATIONS

- 1 1/4" square
- 1 13/32" height
- 1 5/8" diagonal measure
- 1/2" mounting bolt extension

Necessary seals and mounting hardware furnished with element.

OPERATING PRESSURE

- 50 to 125 P.S.I.G. optimum range
- 25 to 150 P.S.I.G. maximum range

TEMPERATURE

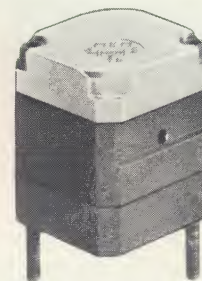
- 32° to 160° F. optimum range
- 40° to 225° F. maximum range

RESPONSE TIME

- Shortest pressure signal to "Set" 10 m.s. (approx.)
- Shortest pressure signal to "Reset" 11 m.s. (approx.)

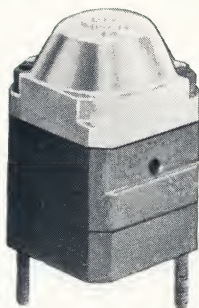
FLOW CHARACTERISTICS

- Flow b → c at 100 P.S.I.G. = 9.3 C.F.M. free air
- Capacity factor Cv = 0.14



MODEL 59013

LOGIC SYMBOL	LOGIC FUNCTION	PORT DESIGNATION
	memory	a = input S (set) input R (reset) b = supply c = output
VALVE SYMBOL	VALVE FUNCTION	PORT DESIGNATION
	3-way nc retained	a = pilot b = supply c = output



MODEL 59014

"DIF" LOGIC ELEMENT

MODEL 59014 "DIFFERENTIATOR" element has one input and one output. (A short Output pulse is emitted each time the Input switches On, regardless of the Input duration. There is no signal where the Input is switched Off.) The element has three bottom ports designated as a, b and c. Each port is marked on the cover to correspond to the base position.

SPECIFICATIONS

- 1 1/4" square
- 1 25/32" height
- 1 5/8" diagonal measure
- 1/2" mounting bolt extension
- Necessary seals and mounting hardware furnished with element.

OPERATING PRESSURE

- 50 to 125 P.S.I.G. optimum range
- 25 to 150 P.S.I.G. maximum range

TEMPERATURE

- 32° to 160° F. optimum range
- 40° to 225° F. maximum range

FLOW CHARACTERISTICS

- Flow $b \rightarrow c$ at 100 P.S.I.G. = 16.2 C.F.M. free air
- Capacity factor $C_v = 0.28$

LOGIC SYMBOL	LOGIC FUNCTION	PORT DESIGNATION
	$c = \Delta b$	a = not connected b = input c = output
VALVE SYMBOL	VALVE FUNCTION	PORT DESIGNATION
	pulse	a = not connected b = input c = output

"TIM" SCREW CONTROL TIMER


MODEL 59015

MODEL 59015 "TIMER" is designed to perform "Delay" functions when used in conjunction with the logic elements No. 59011 "AND" and No. 59012 "NOT". Time is measured pneumatically by filling a chamber in the timer through a metering orifice. As the chamber fills, pressure increases to a level at which the logic elements "AND" or "NOT" are actuated. These elements actuate at a given pressure level (approximately 65% of supply pressure) with a snap action, thereby assuring accurate timing and instant output signal switching. Repeatability of time delay accurate within ± 2 per cent using clean, dry, non lubricated air at a constant regulated pressure.

SPECIFICATIONS

- 1 1/4" square
- 1 11/16" height
- 1 5/8" diagonal measure
- 2 — 6-32 tapped holes in base for mounting
- Necessary seals and mounting screws furnished with element.

DELAY CIRCUITS AND FUNCTIONS

The timing element in various combinations with "AND" or "NOT" elements will perform six different timing functions.

1—Timing IN	4—Timing OUT inverted
2—Timing IN inverted	5—Timing IN & OUT
3—Timing OUT	6—Timing IN & OUT inverted

OPERATING PRESSURE

- 50 to 125 P.S.I.G. optimum range
- 25 to 150 P.S.I.G. maximum range

TEMPERATURE

- 32° to 160° F. optimum range
- 40° to 225° F. maximum range

FLOW CHARACTERISTICS

Element "AND" or "NOT" will switch at approximately 65% of supply pressure.

LOGIC SYMBOL	LOGIC FUNCTION	PORT DESIGNATION
	TIM in conjunction with "AND" or "NOT" element for delay function	a = input b = output connection to "a" port of AND or NOT element c = NOT element
INTERNAL CIRCUIT		

"TIM" with screw control	Timing Range in Seconds	No. of Auxiliary Accumulators for Extended Delays
	$t_s = 0.1 - 10.0^*$	—
	$t_s = 0.2 - 20.0^*$	1
	$t = 0.3 - 30.0^*$	2

*Recommended maximum delay for reliable performance
Timing ranges can be extended beyond the data shown by adding more accumulator volume.

"TIM" DIAL CONTROL TIMER

MODEL 59016 "TIMER" is designed to perform "Delay" functions when used in conjunction with the logic elements No. 59011 "AND" and No. 59012 "NOT". Time is measured pneumatically by filling a chamber in the timer through a metering orifice. As the chamber fills, pressure increases to a level at which the logic elements "AND" or "NOT" are actuated. These elements actuate at a given pressure level (approximately 65% of supply pressure) with a snap action, thereby assuring accurate timing and instant output signal switching. Repeatability of time delay accurate within ± 2 per cent using clean, dry, non lubricated air at a constant regulated pressure.

SPECIFICATIONS

- 1 1/4" square
- 3" height
- 1 7/8" dial diameter
- 2 — 6-32 tapped holes in base for mounting
- Necessary seals and mounting screws furnished with element.

DELAY CIRCUITS AND FUNCTIONS

The timing element in various combinations with the "AND" or "NOT" elements will perform six different timing functions:

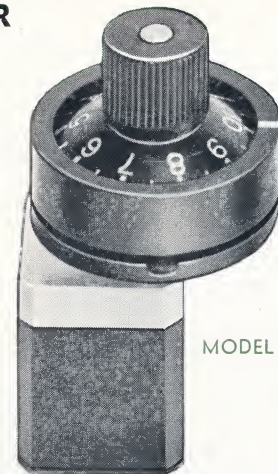
- 1—Timing IN
- 2—Timing IN inverted
- 3—Timing OUT
- 4—Timing OUT inverted
- 5—Timing IN & OUT
- 6—Timing IN & OUT inverted

OPERATING PRESSURE

- 50 to 125 P.S.I.G. optimum range
- 25 to 150 P.S.I.G. maximum range

TEMPERATURE

- 32° to 160° F. optimum range
- 40° to 225° F. maximum range



MODEL 59016

LOGIC SYMBOL	LOGIC FUNCTION	PORT DESIGNATION
	TIM in conjunction with "AND" or "NOT" element for delay function	a = input b = output connection to "a" port of AND or c = NOT element
INTERNAL CIRCUIT		

"TIM" WITH DIAL CONTROL (Typical delay adjustments over dial range "1-10" high limits of timing ranges are calibrated to digit "10" of dial.)	TIMING RANGE IN SECONDS	NO. OF AUXILIARY ACCUMULATORS FOR EXTENDED DELAYS
	t = 0.1 - 2.5 t = 0.2 - 5.0 t = 0.6 - 7.5 ts = 0.8 - 10.0* te = 1.2 - 15.0 te = 1.6 - 20.0 te = 2.0 - 25.0 t = 2.4 - 30.0*	— — — — 1 1 2 2

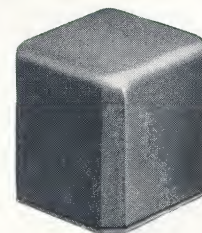
*recommended maximum delay for reliable performance

"ACU" ACCUMULATOR

MODEL 59017 "ACCUMULATORS" are used in conjunction with timing controls (Models 59015 and 59016) to create extended time ranges up to 30 seconds recommended maximum as tabulated on pages 4 and 5.

SPECIFICATIONS

- Volume — 1 cubic inch
- 2 — 6-32 tapped holes in base for mounting
- Necessary seals and mounting screws furnished with element.



MODEL 59017

LOGIC SYMBOL	LOGIC FUNCTION	PORT DESIGNATION
	extension of delay TIM	a = blocked b = Input, connects to b or c port of TIM c = of TIM